Montana Hospital Discharge Data System

Surveillance Report

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Results of the E-Code Quality Improvement Survey, 2011

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Introduction

External cause of injury and poisoning codes (E-codes) are standardized four-digit codes developed by the World Health Organization to supplement the International Classification of Diseases (ICD).[1] E-codes capture information about the cause, intent, and place of occurrence of events in a way that facilitates investigations of injury epidemiology. E-codes provide important information that injury prevention programs need for research and evaluation of prevention strategies.

It is challenging to obtain consistent and meaningful E-code data. From 2000 to 2007, only 28% of injury and poisoning discharge records received by the Montana Hospital Discharge Data System (MHDDS)[2] had E-codes. Recent software upgrades by the Montana Hospital Association's data vendor resulted in a substantial increase in the proportion of injury admission data that included E-codes: 90% of injury and poisoning hospitalizations had at least one E-code in the 2009 data set. This demonstrated that hospitals had been recording E-codes but system incompatibility had prevented transmission of E-code data to MHDDS.

The MHDDS received funding from the Quality Assurance Division of the Montana Department of Public Health and Human Services to conduct a survey in collaboration with the Montana Hospital Association (MHA) to investigate other barriers to E-code reporting in Montana's hospitals, focusing on Critical Access Hospitals (CAHs), and also gathering data on other hospitals that were willing to participate.

Methods

MHDDS contacted the hospital administrators of all hospitals in the state (44 CAHs, 10 other hospitals, and the area director of the Indian Health Service [IHS]) to discuss the survey and to obtain the name of a designated respondent in each hospital, such as the supervisor of health information, billing, or medical records. Responses were received from 35 CAHs, five other hospitals, and the IHS area office representing five facilities (75% response rate).

The survey asked about hospitals' billing software, policies regarding E-coding, and barriers to completion of E-codes (Appendix A). Responses to the survey were tabulated, as was the E-code completion performance of each hospital. Completion was defined by the presence of one E-code and the presence of two or more E-codes for primary injury and poisoning diagnoses. We cross-tabulated survey responses and E-code completion to determine if there was an association between the two.

[1] http://www.cdc.gov/nchs/icd/icd9cm.htm

[2] The Montana Hospital Discharge Data system (MHDDS) receives annual de-identified hospital discharge data stet through a Memorandum of Agreement with the Montana Hospital Association. Most hospitals in Montana participate in voluntary reporting of discharge data from their Uniform Billing Forms, version 2004 (UB-04). The MHDDS receives information on more than 95% of the inpatient admissions in the state.

Results

Survey Responses

Although 30 hospitals used the Universal Billing form, Revision 2004 (UB-04) exclusively, eight hospitals used the HCFA-1500 claim form as well, and two used the UB-04 plus other forms (Table 1). The default UB-04 format has three fields for E-codes but the HCFA-1500 has none. Therefore, even if a medical record contains information that could be E-coded, a Medicaid or Medicare claim will not have E-codes unless they are entered in a secondary diagnosis field or text field. The proportion of Medicaid and Medicare patients in a hospital's population may therefore have an impact on E-code performance.

Table 1. Summary of Survey Responses

Medical billing format†	
UB-04 exclusively	30
UB-04 and HCFA-1500	8
UB-04 and other	2
Billing done by	
Hospital	10
Third party	30
Hospital policy requires E-coding	
Yes	9
No	31
Routinely E-code regardless of policy	
Yes, all injury and poisoning discharges	32
Yes, some injury and poisoning discharges	8
E-coding applies to‡	
Only primary diagnoses	1
Both primary and secondary diagnoses	37
Dedicated E-code fields offered by software‡	
0	12
1	9
2	4
3 or more	14
Record E-codes elsewhere if necessary	
Secondary diagnosis fields	18
Other text fields	2
No	2
Does not apply	18
Software prompts for E-codes	
Yes	14
No	26
Barriers to E-coding†	
Insufficient documentation in chart	25
No hospital policy requiring or encouraging	7
Lack of E-code fields, no other space	6
Staff needs training	6
Too expensive to modify software	3
Code only fields affecting reimbursement	2
No barriers identified	10

† Respondents could check all that applied

‡ Missing responses

Although all respondents reported that their hospital used the UB-04, exclusively or in combination with another billing software, they also reported that the number of E-code fields offered by their billing software varied and nearly one third of respondents reported that their billing software did not have any dedicated fields for E-codes. This suggests that some hospitals have modified the default UB-04 format. Eighteen respondents reported using secondary diagnosis fields for E-codes when dedicated fields were not available. However, fewer than 1% of records received by the MHDDS had E-codes in secondary diagnosis fields, suggesting that E-codes recorded there may not be retained by third-party billers.

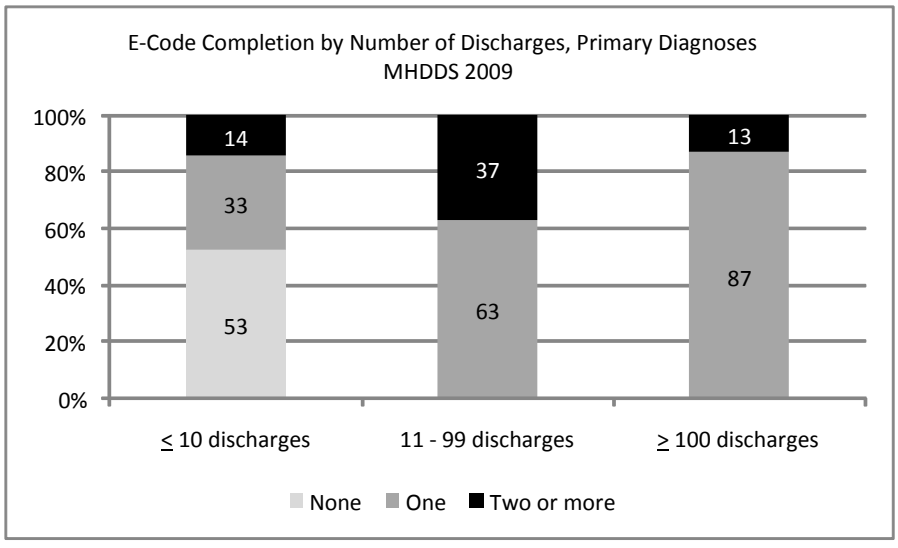
Fourteen respondents reported having software that explicitly prompted for E-codes for injury or poisoning diagnoses. Only nine respondents reported that their hospitals had a policy requiring E-coding, although most reported routinely recording E-codes for both primary and secondary injury and poisoning diagnoses and the rest reported E-coding some injury and poisoning diagnoses. In contrast to these responses, E-code completion as reflected in the data set received by the MHDDS was comparatively low.

Factors Associated with E-Code Completion

For all 2009 discharges with injury or poisoning as the primary diagnosis, 65% had one E-code, 25% had two or more E-codes, and only 10% had no E-codes at all. By hospital, the proportion of discharges with primary injury or poisoning diagnoses with only one E-code ranged from 50% to 100%. The proportion with two or more-codes ranged from 0% to 75%.

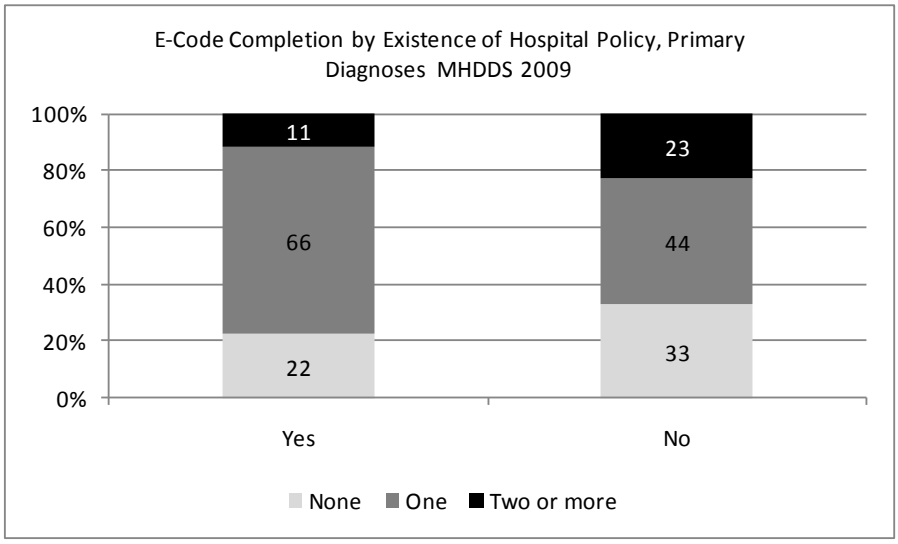
Hospitals with between 11 and 99 injury or poisoning discharges per year had higher E-code completion than either hospitals with 10 or fewer discharges per year or those with 100 or more discharges per year (Figure 1). A similar pattern was seen with number of beds, which was very highly correlated with number of discharges (r = 0.98). None of the hospitals with moderate or large numbers of discharges failed to record at least one E-code, while more than half of the hospitals with the fewest discharges did not record any E-codes.

Figure 1.



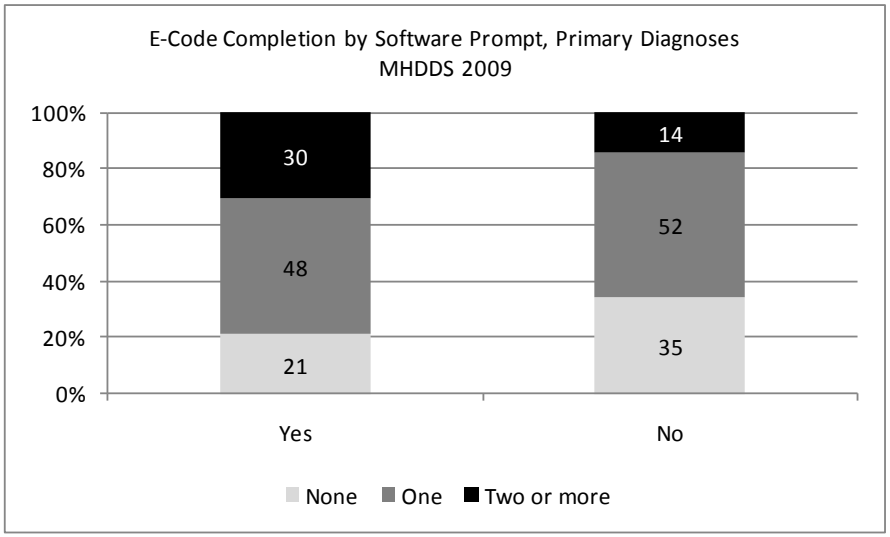
Hospitals with a policy requiring E-codes had better overall E-code completion for primary diagnoses, but somewhat paradoxically, hospitals without such a policy had a greater proportion of discharges with two or more E-codes (Figure 2).

Figure 2.



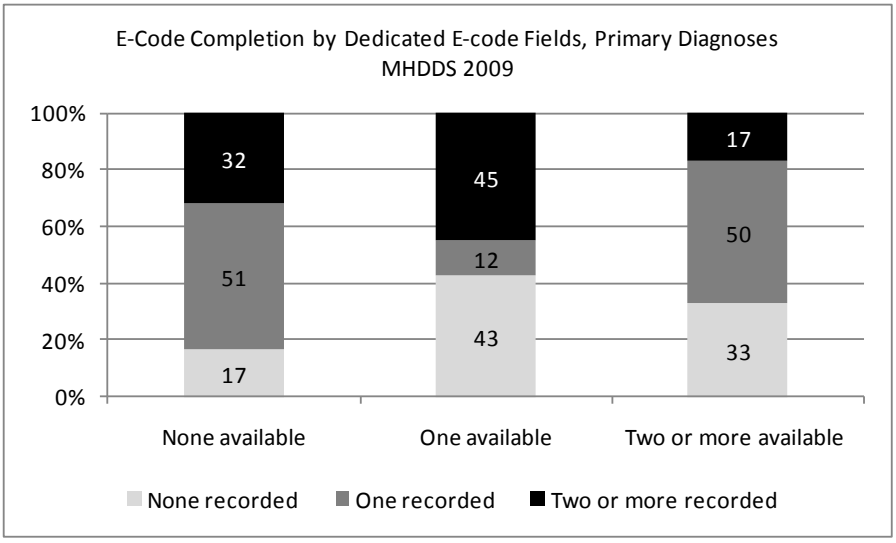
Software prompts were associated with better overall E-code completion and with a higher proportion of discharges with two or more E-codes for primary diagnoses (Figure 3).

Figure 3.



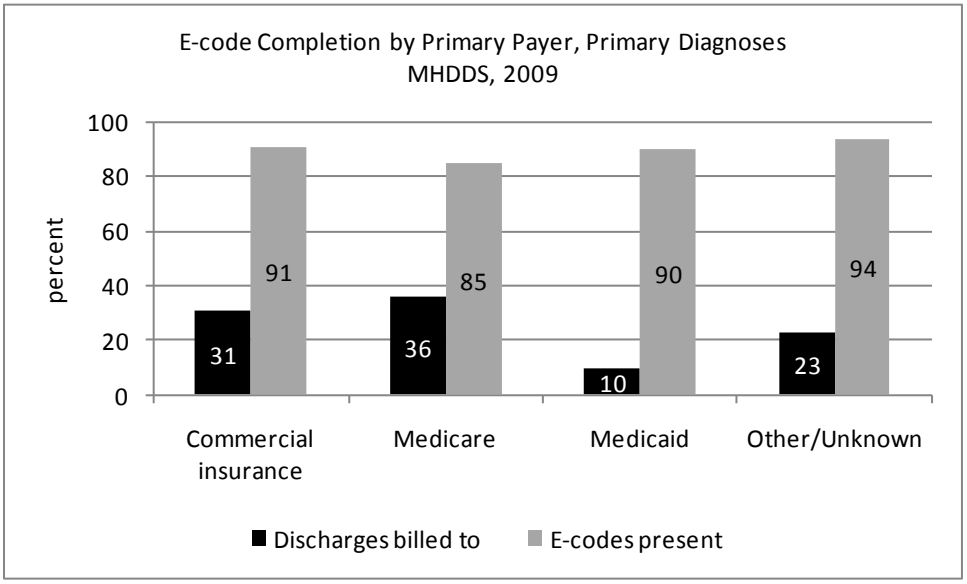
The absence of dedicated E-code fields did not adversely affect E-code completion rate (Figure 4), possibly because E-codes can be recorded in secondary diagnosis fields.

Figure 4.



Commercial insurance was the primary payer for fewer than one third of injury and poisoning discharges. Medicare and Medicaid together were the primary payers for nearly half. In spite of the absence of dedicated E-code fields on the HCFA-1500 claim form, the E-code completion rate for Medicaid patients was nearly as high as for those billed to commercial insurance, and the completion rate for Medicare patients was only moderately lower.

Figure 5



The use of a third-party biller (n = 30 hospitals) did not affect the rate of completion of E-codes (data not shown), nor did the particular biller used (22 Health-e-Web and 8 others).

Barriers to E-Coding Identified by Respondents

By far the most commonly cited barrier to E-coding was insufficient documentation the medical records (n=25), although this was not associated with significant variation in E-code completion. The remaining barriers identified were lack of hospital policy supporting or encouraging E-coding (n=7), lack of E-code fields (n=4), the expense of modifying software to accommodate E-coding (n=3), and a policy to code only items affecting reimbursement (n=2). In addition, six respondents checked the box for "Staff needs training or refresher in E-coding." We intended this response to apply to coding staff, but in view of the large number of responses citing insufficient documentation in medical records, this perceived need may apply more widely.

Limitations of the Survey

The survey was conducted between February and April, 2011. The data on E-code performance were from the calendar year 2009, the most recent data set available in MHDDS. It is possible that some hospitals changed software systems or policies in the interim, or that some have experienced changes in their E-code completion.

Survey respondents held a variety of positions in their respective hospitals: eleven were fiscal directors or managers or billing specialists, 13 were managers of health information or medical records departments, seven were medical records coders, and 10 did not provide their job titles. Their respective positions may give them different perspectives on E-coding activities. For example, one respondent who self-identified as a medical records coder commented that coders always recorded E-codes as extensively as possible, in accordance with hospital policy, but did not know what happened to that information in the billing office. There may also be a disconnect between E-coding activities in the hospitals and data transmitted by third-party billing agencies in some hospitals.

Conclusions

Three factors have been found to be associated with variation E-code performance in other investigations: the availability of dedicated E-code fields in medical records and billing software, automatic prompts to complete E-codes for injury and poisoning diagnosis and procedure codes, and hospital policies promoting or requiring E-coding.[3]

Hospitals with E-code policies had slightly higher E-code completion in the data set received by the MHDDS, as did hospitals that had software that prompted for E-codes. The absence of dedicated E-code fields did not appear to adversely affect E-code completion. However, neither policy nor software will allow coders to add E-codes if the information is not available in the medical records they have access to. More than half of the respondents to the survey identified inadequate information in the medical records as a barrier to E-code completion.

[3] Sniezek JE. 1989. *JAMA* 262:2270-2272.

Appendix A
Supplemental Classification of External Causes of Injury and Poisoning (E-Coding)
Medical Billing Department Survey of E-Coding Practices

Your responses will be confidential. The summary report of the results of this survey will not identify individual respondents or hospitals.

1. What medical billing format do you use?
   ___ UB-04
   ___ Something else (specify): _____

2. What medical billing software system do you use: _____

3. Do you bill
   ___ Directly
   ___ Through a third party. Which one: _____

We ask this because it is possible that you perform excellent E-coding, but a third party billing agent or other data management entity may not process or transmit E-codes to us because E-codes are not used for reimbursement.

4. Does your hospital routinely record E-codes on billing forms for discharges involving injury and poisoning?
   ___ No Please skip to Question 10 on page 2.
   ___ Yes, some injury and poisoning discharges
   ___ Yes, all injury and poisoning discharges

5. Does your hospital have an explicit policy that requires E-coding?
   ___ No
   ___ Yes

6. Regardless of your hospital's policy, do you routinely or usually E-code for the following:

   A. Injury or Poisoning by Diagnosis Category
      ___ Only primary diagnoses
      ___ Both primary and secondary diagnoses

   B. Types of Injuries and Poisonings
      ___ All injuries and poisonings
      ___ Only certain types of injuries and poisonings (specify): _____

7. Does your billing software offer you all dedicated E-code fields?
   ___ No, there are no dedicated E-code fields.
   ___ There is 1 dedicated E-code field.
   ___ There are 2 dedicated E-code fields.
   ___ There are 3 or more dedicated E-code fields.

8. If your software system does not offer you dedicated E-code fields, or if you need more E-code fields than the system offers, where do you record E-codes?
   ___ Secondary diagnosis fields
   ___ Elsewhere (specify): _____

9. Does your billing software automatically prompt for E-codes if there is an injury or poisoning diagnosis?
   ___ No
   ___ Yes

For all respondents (even if your hospital does not E-code at all, please respond to the following question):

10. Do you experience any of the following barriers or limitations to E-coding in discharge billing? Please check all that apply. Please feel free to describe any other barriers or issues that we have not mentioned.

___ Insufficient documentation in the medical chart to complete some or all E-code fields
___ Lack of E-code fields in the billing software
___ No room for E-codes in secondary diagnosis fields
___ E-coding is not supported by our software
___ It would be too expensive to modify our software
___ It would take too much staff time to search for the information in the medical charts and code the additional fields
___ Inadequate staffing (including turnover, vacancies, no designated FTE) to complete non-required fields
___ We code only fields that affect reimbursement
___ No hospital policy actively promoting E-coding
___ Hospital policy actively discouraging E-coding
___ Other, please describe:

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___ Staff needs training or refresher in E-coding

Thank you for completing the survey. If you would like to receive a copy of the results, please include your name and an e-mail address or fax number below: